

1. TRANSMITTED DATA

1-1 CHANNEL MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description	ENA
1000 nnnn (8n)	0kkk kkkk (kk)	0100 0000 (40)	Note Off kkk kkkk=24..108 (61Keys+Transpose)	A
1001 nnnn (9n)	0kkk kkkk (kk)	0vvv vvvv (vv)	Note On kkk kkkk=24..108 (61Keys+Transpose) vvv vvvv=1..127	A
1010 nnnn (An)	0kkk kkkk (kk)	0vvv vvvv (vv)	Poly Key Pressure (Recorded Seq Data)	T,Q
1011 nnnn (Bn)	0000 0000 (00)	0mmm mmmm (mm)	Bank Select(MSB) (BANK Key, etc) *1	P
1011 nnnn (Bn)	0000 0001 (01)	0vvv vvvv (vv)	Modulation 1 (Joystick(+Y))	C
1011 nnnn (Bn)	0000 0010 (02)	0vvv vvvv (vv)	Modulation 2 (Joystick(-Y))	C
1011 nnnn (Bn)	0000 0100 (04)	0000 0000 (00)	Foot Pedal (Select Main Scale)	C
1011 nnnn (Bn)	0000 0100 (04)	0111 1111 (7F)	Foot Pedal (Select Sub Scale)	C
1011 nnnn (Bn)	0000 0111 (07)	0vvv vvvv (vv)	Volume (Assign Pedal, etc)	C
1011 nnnn (Bn)	0000 1010 (0A)	0vvv vvvv (vv)	Panpot (by A:B Panpot)	C
1011 gggg (Bg)	0000 1100 (0C)	0vvv vvvv (vv)	Effect Control (Assignable Pedal)	C
1011 nnnn (Bn)	0010 0000 (20)	0111 1111 (11)	Bank Select(LSB) (BANK Key, etc) *1	P
1011 nnnn (Bn)	0100 0000 (40)	0000 0000 (00)	Hold 1 Off (Damper Pedal)	C
1011 nnnn (Bn)	0100 0000 (40)	0111 1111 (7F)	Hold 1 On (Damper Pedal)	C
1011 nnnn (Bn)	0ccc cccc (cc)	0vvv vvvv (vv)	Control Data (Recorded Seq Data) ccc cccc=00..127	C,Q
1100 nnnn (Cn)	0ppp pppp (pp)	---- ----	Program Change (Prog Change) *1	P
1101 nnnn (Dn)	0vvv vvvv (vv)	---- ----	Channel Pressure (Aftertouch)	T
1110 nnnn (En)	0bbb bbbb (bb)	0bbb bbbb (bb)	Pitch Bend (Joystick(X))	C

nnnn : MIDI Channel No.(0-15) Usually Global Channel. When using sequencer, each track's channel.

gggg : Always Global Channel No.(0-15)

vvvv : Value

ENA = A : Always Enabled

C : Enabled when Control Filter in GLOBAL Mode is ENA

P : Enabled when Program Filter in GLOBAL Mode is ENA

T : Enabled when Aftertouch Filter in GLOBAL Mode is ENA

Q : Enabled when sequencer is playing (transmitting) or recording (receiving)

T,Q: T and Q

C,Q: C and Q

*1 : Program : MIDI Out (Hex)

A11..A88: mm,ll,pp = 38,00,00..3F

B11..B88: mm,ll,pp = 38,00,40..7F

C11..C88: mm,ll,pp = 00,01,00..3F

U11..U88: mm,ll,pp = 00,01,40..7F

D11..D88: mm,ll,pp = 00,03,00..3F

E11..E88: mm,ll,pp = 00,03,40..7F

Dr11 : mm,ll,pp = 3E,00,00

Dr12 : mm,ll,pp = 3E,00,10

Dr13 : mm,ll,pp = 3E,00,19

Dr14 : mm,ll,pp = 3E,00,20

Dr15 : mm,ll,pp = 3E,00,28

Dr16 : mm,ll,pp = 3E,00,40

Dr17 : mm,ll,pp = 3E,00,18

Dr18 : mm,ll,pp = 3E,00,30

Dr21..28: mm,ll,pp = 3E,00,78..7F

1-2 SYSTEM COMMON MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description
1111 0010 (F2)	0sss ssss (ss)	0ttt tttt (tt)	Song Position Pointer sss ssss : Least significant (LSB) *2 ttt tttt : Most significant (MSB) *2
1111 0011 (F3)	0000 ssss (ss)	---- ----	Song Select sss : Song No. = 0..9

Transmitted when in Song mode (Internal Clock)

When the number is changed, the i5s transmits [Song Select], then [Bank Select],
[Program Change],[Volume], and [Panpot] for each track whose Status = EXT or BOTH.
Then [Song Position Pointer].

*2 : For Example Time Signature = 4/4, 8/8
tt,ss = 00,10 / Measure

1-3 SYSTEM REALTIME MESSAGES

Status (Hex)	Description	
1111 1000 (F8)	Timing Clock	*3
1111 1010 (FA)	Start	*3
1111 1011 (FB)	Continue	*3
1111 1100 (FC)	Stop	*3
1111 1110 (FE)	Active Sensing	

*3 : Transmits when in Song or Backing Sequence mode (Internal Clock)

1-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (DEVICE INQUIRY REPLY)

Byte (Hex)	Description
1111 0000 (F0)	Exclusive Status
0111 1110 (7E)	Non Realtime Message
0000 gggg (0g)	MIDI GLOBAL CHANNEL (DEVICE ID)
0000 0110 (06)	INQUIRY MESSAGE
0000 0010 (02)	IDENTITY REPLY
0100 0010 (42)	KORG ID (MANUFACTURERS ID)
0011 1001 (39)	i-series ID (FAMILY CODE (LSB))
0000 0000 (00)	(FAMILY CODE (MSB))
0000 0100 (04)	(MEMBER CODE (LSB))
0000 0000 (00)	(MEMBER CODE (MSB))
0*** ***(*)	ROM No. 1.. (Minor Ver. (LSB))
0000 0000 (00)	(Minor Ver. (MSB))
0*** ***(*)	SOFT VER. 1.. (Major Ver. (LSB))
0000 0000 (00)	(Major Ver. (MSB))
1111 0111 (F7)	END OF EXCLUSIVE

Transmits when INQUIRY MESSAGE REQUEST Received

1-5 STRUCTURE OF KORG SYSTEM EXCLUSIVE MESSAGES

1st Byte = 1111 0000 (F0) : Exclusive Status		
2nd Byte = 0100 0010 (42) : KORG ID		
3rd Byte = 0011 gggg (3g) : Format ID	g:Global ch.	EX.Header
4th Byte = 0011 1100 (3C) : i5S ID		
5th Byte = 0fff ffff (ff) : Function Code	(See Func Code List)	
6th Byte = 0ddd dddd (dd) : Data		
:	:	
LastByte = 1111 0111 (F7) : End of Exclusive EOX		

1-6 Transmitted Function Code List

Func	Description	R	D	E	C
42	MODE DATA	o			
4E	MODE CHANGE				o *4
53	DRUM KIT PARAMETER CHANGE				o *5
4C	ALL PROGRAM PARAMETER DUMP	o			
64	ALL ARRANGEMENT PARAMETER DUMP	o	o		
65	ALL STYLE DATA DUMP	o			
66	ALL BACKING SEQUENCE DATA DUMP	o	o		
51	GLOBAL DATA DUMP	o	o		
52	DRUMS DATA DUMP	o	o		
50	ALL DATA(GLB,DRM,PRG,ARR,STY,SEQ,BSQ)DUMP	o	o		
26	RECEIVED MESSAGE FORMAT ERROR	o		o	
23	DATA LOAD COMPLETED (ACK)			o	
24	DATA LOAD ERROR (NAK)			o	
67	CHORD				

Transmitted when

R : Request message is received
D : Data dump from Global mode (Doesn't respond to Exclusive ENA,DIS)
E : Exclusive message is received
C : Mode or No. is changed by switch

Some Request Messages are not received in some modes. See 2-6.

* When transmitting a series of exclusive messages to the i5s, wait until [DATA LOAD COMPLETED] or [WRITE COMPLETED] is received.

*4 : Transmitted when Mode is changed.

*5 : Transmitted when editing drum kit's parameters in GLOBAL mode.

2. RECOGNIZED RECEIVE DATA

2-1 CHANNEL MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description	ENA
1000 nnnn (8n)	0kkk kkkk (kk)	0xxx xxxx (xx)	Note Off	A
1001 nnnn (9n)	0kkk kkkk (kk)	0000 0000 (00)	Note Off	A
1001 nnnn (9n)	0kkk kkkk (kk)	0vvv vvvv (vv)	Note On	A
		vvv vvvv=1..127		
1010 nnnn (An)	0kkk kkkk (kk)	0vvv vvvv (vv)	Poly Key Pressure (For Seq.Recording)	T,Q
1011 nnnn (Bn)	0000 0000 (00)	0mmmm mmmmm (mm)	Bank Select(MSB)	*1 P
1011 nnnn (Bn)	0000 0001 (01)	0vvv vvvv (vv)	Modulation1 Depth (Pitch Modulation)	C
1011 nnnn (Bn)	0000 0010 (02)	0vvv vvvv (vv)	Modulation2 Depth (Cutoff Modulation)	C
1011 nnnn (Bn)	0000 0100 (04)	00vv vvvv(<40)	Foot Pedal Off (Select Main Scale)	C
1011 nnnn (Bn)	0000 0100 (04)	01vv vvvv(>3F)	Foot Pedal On (Select Sub Scale)	C
1011 nnnn (Bn)	0000 0110 (06)	0vvv vvvv (vv)	Data Entry (MSB) (For RPN Edit)	C
1011 nnnn (Bn)	0000 0111 (07)	0vvv vvvv (vv)	Volume	C
1011 nnnn (Bn)	0000 1010 (0A)	0vvv vvvv (vv)	Panpot (A:B Panpot)	C
1011 nnnn (Bn)	0000 1011 (0B)	0vvv vvvv (vv)	Expression	C
1011 gggg (Bg)	0000 1100 (0C)	0vvv vvvv (vv)	Effect Control (Dyna Mod Src= PEDAL1)	C
1011 gggg (Bg)	0000 1101 (0D)	0vvv vvvv (vv)	Effect Control (Dyna Mod Src= PEDAL2)	C
1011 nnnn (Bn)	0010 0000 (20)	0111 1111 (11)	Bank Select(LSB)	*1 P
1011 nnnn (Bn)	0010 0110 (26)	0vvv vvvv (vv)	Data Entry (LSB) (For RPN Edit)	C
1011 nnnn (Bn)	0100 0000 (40)	00xx xxxx(<40)	Hold1 Off (Damper Off)	C
1011 nnnn (Bn)	0100 0000 (40)	01xx xxxx(>3F)	Hold1 On (Damper On)	C
1011 nnnn (Bn)	0100 1000 (48)	0vvv vvvv (vv)	Release Time (Perf Edit Rel Time) *4	C
1011 nnnn (Bn)	0100 1000 (49)	0vvv vvvv (vv)	Attack Time (Perf Edit Atk Time) *4	C
1011 nnnn (Bn)	0100 1000 (4A)	0vvv vvvv (vv)	Brightness (Perf Edit Cutoff) *4	C
1011 nnnn (Bn)	0101 1011 (5B)	0vvv vvvv (vv)	Reverb Level (Send C Level)	C
1011 gggg (Bg)	0101 1100 (5C)	0000 0000 (00)	Effect1 Level (FX1 Off)	C
1011 gggg (Bg)	0101 1100 (5C)	0xxx xxxx(>00)	Effect1 Level (FX1 On)	C
1011 nnnn (Bn)	0101 1101 (5D)	0vvv vvvv (vv)	Chorus Level (Send D Level)	C
1011 gggg (Bg)	0101 1110 (5E)	0000 0000 (00)	Effect2 Level (FX2 Off)	C
1011 gggg (Bg)	0101 1110 (5E)	0xxx xxxx(>00)	Effect2 Level (FX2 On)	C
1011 nnnn (Bn)	0110 0000 (60)	0000 0000 (00)	DATA Increment (For RPN Edit)	C
1011 nnnn (Bn)	0110 0001 (61)	0000 0000 (00)	DATA Decrement (For RPN Edit)	C
1011 nnnn (Bn)	0110 0100 (64)	0000 00rr (0r)	RPN Parameter No.(LSB)	*3 A
1011 nnnn (Bn)	0110 0101 (65)	0000 0000 (00)	RPN Parameter No.(MSB)	*3 A
1011 nnnn (Bn)	0111 1000 (78)	0000 0000 (00)	All Sound Off	C
1011 nnnn (Bn)	0111 1001 (79)	0000 0000 (00)	Reset All Controllers	C
1011 nnnn (Bn)	0ccc cccc (cc)	0vvv vvvv (vv)	Control Data (For Seq.Recording)	C,Q
		ccc cccc=00..127		
1011 gggg (Bg)	0111 1010 (7A)	0000 0000 (00)	Local Control Off	A
1011 gggg (Bg)	0111 1010 (7A)	0111 1111 (7F)	Local Control On	A
1011 nnnn (Bn)	0111 1011 (7B)	0000 0000 (00)	All Notes Off	A

1011 nnnn (Bn)	0111 110x (7x)	0000 0000 (00)	Omni Mode Off/On (All Notes Off)	A
1011 nnnn (Bn)	0111 1110 (7E)	000m mmmm(<11)	Mono Mode On (All Notes Off)	A
			m mmmm=0..16	
1011 nnnn (Bn)	0111 1111 (7F)	0000 0000 (00)	Poly mode On (All Notes Off)	A
1100 nnnn (Cn)	0ppp pppp (pp)	---- --	Program Change (Prog,Comb CHG)	*1,2 P
1101 nnnn (Dn)	0vvv vvvv (vv)	---- --	Channel Pressure (Aftertouch)	T
1110 nnnn (En)	0bbb bbbb (bb)	0bbb bbbb (bb)	Bender Change (Pitch Bend)	C

nnnn : MIDI Channel No.(0-15) Usually Global Channel.
When in SONG Mode, each track's channel.
gggg : Always Global Channel No.(0-15)

x : Don't care

ENA : Same as TRANSMITTED DATA

*1 : MIDI In (Hex): Program
mm,11,pp = 00,00,00..3F : A11..A88
00,00,40..7F : B11..B88
00,01,00..3F : C11..C88
00,01,40..7F : U11..U88
00,02,00..0F : Dr11
00,02,10..17 : Dr12
00,02,18 : Dr17
00,02,19 : Dr13
00,02,1A..1F : Dr17
00,02,20..27 : Dr14
00,02,28..2F : Dr15
00,02,30..37 : Dr18
00,02,38..3F : Dr11
00,02,40..47 : Dr16
00,02,48..77 : Dr11
00,02,78..7F : Dr21..Dr28
00,03,00..3F : D11..D88
00,03,40..7F : E11..E88
38,xx,00..3F : A11..A88
38,xx,40..7F : B11..B88
39,xx,00..3F : A11..A88
39,xx,40..7F : B11..B88
3A..3D,xx,xx : OFF
3E,xx,00..0F : Dr11
3E,xx,10..17 : Dr12
3E,xx,18 : Dr17
3E,xx,19 : Dr13
3E,xx,1A..1F : Dr17
3E,xx,20..27 : Dr14
3E,xx,28..2F : Dr15
3E,xx,30..37 : Dr18
3E,xx,38..3F : Dr11
3E,xx,40..47 : Dr16
3E,xx,48..77 : Dr11
3E,xx,78..7F : Dr21..Dr28
3F,xx,xx : OFF

xx : don't care

*2 : After processing (while Exclusive = ENA) transmits exclusive message [DATA LOAD COMPLETED]
or [DATA LOAD ERROR].

*3 : rr = 0 : Pitch Bend Sensitivity
= 1 : Fine Tune (When Received Ch = Global Ch, Master Tune)
= 2 : Coarse Tune (Transpose)

*4 : vv < 40: Fast or Dark
= 40: No change
> 40: Slow or Bright

2-2 SYSTEM COMMON MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description
1111 0010 (F2)	0sss ssss (ss)	0ttt tttt (tt)	Song Position Pointer
1111 0011 (F3)	000s ssss (ss)	---- --	Song Select

Received when in SONG mode (External Clock)

2-3 SYSTEM REALTIME MESSAGES

Status (Hex)	Description	
1111 1000 (F8)	Timing Clock	*5
1111 1010 (FA)	Start	*5
1111 1011 (FB)	Continue	*5

1111 1100 (FC)	Stop	*5
1111 1110 (FE)	Active Sensing	

*5 : Received when in SONG mode (External Clock)

2-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (NON REALTIME)

Byte (Hex)	Description	
1111 0000 (F0)	EXCLUSIVE STATUS	
0111 1110 (7E)	NON REALTIME MESSAGE	
0ggg gggg (gg)	MIDI CHANNEL	*6
0000 aaaa (0a)	SUB ID 1	*7
0000 00bb (0b)	SUB ID 2	*7
1111 0111 (F7)	END OF EXCLUSIVE	

*6 : gg = 0..F : Received if Global Channel
= 7F : Received on any Channel

*7 : a,b = 06,01 : INQUIRY MESSAGE REQUEST
= 09,01 : GENERAL MIDI MODE ON
(Received anytime except when Seq playing/recording, or when DATA FILER page is selected)

2-5 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (REALTIME)

Byte (Hex)	Description	
1111 0000 (F0)	EXCLUSIVE STATUS	
0111 1111 (7F)	REALTIME MESSAGE	
0ggg gggg (gg)	MIDI CHANNEL	*6
0000 0100 (04)	SUB ID 1	
0000 00bb (0b)	SUB ID 2	*8
0vvv vvvv (vv)	VALUE(LSB)	*8
0mmm mmmm (mm)	VALUE(MSB)	*8
1111 0111 (F7)	END OF EXCLUSIVE	

*8 : b = 01 : MASTER VOLUME (mm,vv = 00,00..7F,7F : Min..Max)
= 02 : MASTER BALANCE (mm,vv = 00,00..40,00..7F,7F : L..Center..R)

2-6 SYSTEM EXCLUSIVE MESSAGES

* Not received when Sequencer is playing, recording, or when the DATA FILER page is selected.

Function Code List

Func	Description	G	A	No.
12	MODE REQUEST	o	o	42
1C	ALL PROGRAM PARAMETER DUMP REQUEST	A	o	4C
30	ALL ARRANGEMENT PARAMETER DUMP REQUEST	A	o	64
31	ALL STYLE DATA DUMP REQUEST	A	o	65
32	ALL BACKING SEQUENCE DATA DUMP REQUEST	A	o	66
0E	GLOBAL DATA DUMP REQUEST	A	o	51
0D	DRUMS DATA DUMP REQUEST	A	o	52
0F	ALL DATA(GLB,DRM,PRG,ARR,STY,SEQ,BSQ)DUMP REQ	A	o	50
4C	ALL PROGRAM PARAMETER DUMP	A	o	23
64	ALL ARRANGEMENT PARAMETER DUMP	A	o	23
65	ALL STYLE DATA DUMP	A	o	23
66	ALL BACKING SEQUENCE DATA DUMP	A	o	23
51	GLOBAL DATA DUMP	A	o	23
52	DRUMS DATA DUMP	A	o	23
50	ALL DATA(GLB,DRM,PRG,ARR,STY,SEQ,BSQ) DUMP	A	o	23
4E	MODE CHANGE	o	o	23
41	PARAMETER CHANGE			23
53	DRUM KIT PARAMETER CHANGE	o		23
67	CHORD	o	o	

Received when in

G : GLOBAL Mode

(A=Does not respond to Exclusive ENA, DIS on DATA DUMP page)

A :any other mode

No. : MIDI Out Function No.

(transmitted after the message has been received.)

3. MIDI EXCLUSIVE FORMAT (R:Receive, T:Transmit)

See 1-5 'STRUCTURE OF KORG SYSTEM EXCLUSIVE MESSAGES'

Byte	Description	
F0,42,3g,39	EXCLUSIVE HEADER	
0001 0010 (12)	MODE REQUEST	12H

1111 0111 (F7)	EOX	
+-----+		
Receives this message, and transmits Func=42 message.		
(2) ALL PROGRAM PARAMETER DUMP REQUEST		R
+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0001 1100 (1C)	ALL PROGRAM PARAMETER DUMP REQUEST	1CH
1111 0111 (F7)	EOX	
+-----+		
Receives this message, and transmits Func=4C or Func=24 message.		
(3) ALL ARRANGEMENT PARAMETER DUMP REQUEST		R
+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0011 0000 (30)	ALL ARRANGEMENT PARAMETER DUMP REQUEST	30H
1111 0111 (F7)	EOX	
+-----+		
Receives this message, and transmits Func=64 or Func=24 message.		
(4) ALL STYLE DATA DUMP REQUEST		R
+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0011 0001 (31)	ALL STYLE DATA DUMP REQUEST	31H
1111 0111 (F7)	EOX	
+-----+		
Receives this message, and transmits Func=65 or Func=24 message.		
(5) ALL BACKING SEQUENCE DATA DUMP REQUEST		R
+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0011 0010 (32)	ALL BACKING SEQUENCE DATA DUMP REQUEST	32H
1111 0111 (F7)	EOX	
+-----+		
Receives this message, and transmits Func=66 or Func=24 message.		
(6) GLOBAL DATA DUMP REQUEST		R
+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0000 1110 (0E)	GLOBAL DATA DUMP REQUEST	0EH
1111 0111 (F7)	EOX	
+-----+		
Receives this message, and transmits Func=51 or Func=24 message.		
(7) DRUMS DATA DUMP REQUEST		R
+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0000 1101 (0D)	DRUMS DATA DUMP REQUEST	0DH
1111 0111 (F7)	EOX	
+-----+		
Receives this message, and transmits Func=52 or Func=24 message.		
(8) ALL DATA (GLB,DRM,PRG,ARR,STY,SEQ,BSQ) DUMP REQUEST		R
+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0000 1111 (0F)	ALL DATA DUMP REQUEST	0FH
1111 0111 (F7)	EOX	
+-----+		
Receives this message, and transmits Func=50 or Func=24 message.		
(9) ALL PROGRAM PARAMETER DUMP		R,T
+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0100 1100 (4C)	ALL PROGRAM PARAMETER DUMP	4CH
0ddd dddd (dd)	Data	(NOTE 1,3)
:	:	
1111 0111 (F7)	EOX	
+-----+		
Receives this message & data, and transmits Func=23 or Func=24 message.		
Receives Func=1C message, and transmits this message & data.		
(10) ALL ARRANGEMENT PARAMETER DUMP		R,T
+-----+		
Byte	Description	
+-----+		

F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0110 0100 (64)	ALL ARRANGEMENT PARAMETER DUMP	64H
0ddd dddd (dd)	Data	(NOTE1,4)
:	:	
1111 0111 (F7)	EOX	

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=30 message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed

(11) ALL STYLE DATA DUMP		R,T
Byte	Description	
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0110 0101 (65)	ALL STYLE DATA DUMP	65H
0ddd dddd (dd)	Style Header	(NOTE 1,5-1)
:	:	
0ddd dddd (dd)	Style Data	(NOTE 1,5-2)
:	:	
1111 0111 (F7)	EOX	

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=31 message, and transmits this message & data.

(12) ALL BACKING SEQUENCE DATA DUMP		R,T
Byte	Description	
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0110 0110 (66)	ALL BACKING SEQUENCE DATA DUMP	66H
0sss ssss (ss)	Backing Sequence Data Size	(NOTE 7-1)
:	:	
0ddd dddd (dd)	Control Data	(NOTE 1,7-2)
:	:	
0ddd dddd (dd)	Backing Sequence Data	(NOTE 1,7-3)
:	:	
1111 0111 (F7)	EOX	

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=32 message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(13) GLOBAL DATA DUMP		R,T
Byte	Description	
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0101 0001 (51)	GLOBAL DATA DUMP	51H
0ddd dddd (dd)	Data	(NOTE 1,8)
:	:	
1111 0111 (F7)	EOX	

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=0E message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(14) DRUMS DATA DUMP		R,T
Byte	Description	
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0101 0010 (52)	DRUMS DATA DUMP	52H
0ddd dddd (dd)	Data	(NOTE 1,9)
:	:	
1111 0111 (F7)	EOX	

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=0D message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(15) ALL DATA(GLB,DRM,PRG,ARR,STY,SEQ,BSQ) DUMP		R,T
Byte	Description	
F0,42,3g,39(3C)	EXCLUSIVE HEADER	
0101 0000 (50)	ALL DATA DUMP	50H
0sss ssss (ss)	i2/i3 Sequence Data Size	(NOTE 6-1)
:	:	
0sss ssss (ss)	Backing Sequence Data Size	(NOTE 7-1)
:	:	
0ddd dddd (dd)	Data	(NOTE 1,10)
:	:	
1111 0111 (F7)	EOX	

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=0F message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(16) MODE CHANGE		R,T
Byte	Description	

Byte	Description
F0,42,3g,39	EXCLUSIVE HEADER
0100 1110 (4E)	MODE CHANGE 4EH
0000 mmmm (0m)	Mode Data (NOTE 11)
1111 0111 (F7)	EOX

Receives this message & data, changes the Mode, and transmits Func=23 or Func=24.
When the mode is changed by switch, this message & data is transmitted.

(17) PARAMETER CHANGE	R
Byte	Description
F0,42,3g,3C	EXCLUSIVE HEADER
0100 0001 (41)	PARAMETER CHANGE 41H
0ppp pppp (pp)	Parameter No. (TABLE 8)
0vvv vvvv (vv)	Value (LSB bit6-0) (NOTE 12)
0vvv vvvv (vv)	Value (MSB bit13-7) (NOTE 12)
1111 0111 (F7)	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
When the Parameter No. is changed by switch, this message & data is transmitted.

(18) DRUM KIT PARAMETER CHANGE	R,T
Byte	Description
F0,42,3g,39(3C)	EXCLUSIVE HEADER
0101 0011 (53)	DRUM KIT PARAMETER CHANGE 53H
0000 000k (0k)	Drum Kit No. (NOTE 14)
00ss ssss (ss)	Index No. (ss=00..59)
0000 pppp (0p)	Parameter No. (TABLE 9)
0vvv vvvv (vv)	Value (LSB bit6-0) (NOTE 12)
0vvv vvvv (vv)	Value (MSB bit13-7) (NOTE 12)
1111 0111 (F7)	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.

(19) MODE DATA	T
Byte	Description
F0,42,3g,39	EXCLUSIVE HEADER
0100 0010 (42)	MODE DATA 42H
0000 mmmm (0m)	Mode Data (NOTE 11)
0000 0000 (00)	
1111 0111 (F7)	EOX

Receives Func=12 message, and transmits this message & data.

(20) MIDI IN DATA FORMAT ERROR	T
Byte	Description
F0,42,3g,39(3C)	EXCLUSIVE HEADER
0010 0110 (26)	MIDI IN DATA FORMAT ERROR 26H
1111 0111 (F7)	EOX

Transmits this message when there is an error in the MIDI IN message (for example, if data length is other than expected).

(21) DATA LOAD COMPLETED (ACK)	T
Byte	Description
F0,42,3g,39(3C)	EXCLUSIVE HEADER
0010 0011 (23)	DATA LOAD COMPLETED 23H
1111 0111 (F7)	EOX

Transmits this message when DATA LOADING and PROCESSING have been completed.

(22) DATA LOAD ERROR (NAK)	T
Byte	Description
F0,42,3g,39(3C)	EXCLUSIVE HEADER
0010 0100 (24)	DATA LOAD ERROR 24H
1111 0111 (F7)	EOX

Transmits this message when DATA LOADING and PROCESSING have not been completed (for example, if memory is protected).

(23) CHORD	R,T
Byte	Description
F0,42,3g,39	EXCLUSIVE HEADER
0110 0111 (67)	CHORD 67H
0000 rrrr (0r)	Root (C=0)

0000 bbbb (0b)	Bass (C=0)	
0ccc cccc (cc)	Chord type (LSB)	(NOTE 15)
000c cccc (cc)	Chord type (MSB)	(NOTE 15)
0ttt tttt (tt)	Tension note(s) (LSB)	(NOTE 16)
000t tttt (tt)	Tension note(s) (MSB)	(NOTE 16)
1111 0111 (F7)	EOX	

NOTE 1 :			
DUMP DATA CONVERT n=0.. for NOTE 2, 3, 4, 5-1, 5-2, 6-2, 6-3, 7-2, 7-3, 8, 9, 10			
DATA (lset = 8bit x 7Byte)			
b7	b0	b7	b0
+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+
+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+
7n+0	7n+1	7n+2 .. 7n+5	7n+6
MIDI DATA (lset = 7bit x 8Byte)			
b7b7b7b7b7b7b7b7	b6	b0	b6
+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+
0	0	0	0
+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+	+-----+-----+-----+-----+-----+-----+-----+-----+
7n+6,5,4,3,2,1,0	7n+0	7n+1 .. 7n+5	7n+6

NOTE 2 : PROGRAM PARAMETER DUMP FORMAT (See TABLE 1, NOTE 1)
 [Parameter No.00], .. , [Parameter No.163]
 164Byte = 7x23+3 -> 8x23+(1+3) = 188Byte

NOTE 3 : ALL PROGRAM PARAMETER DUMP FORMAT (See TABLE 1, NOTE 2)
 [Prog.D11(164Byte)], .. , [Prog.D88(164Byte)],
 [Prog.Dr7(164Byte)], [Prog.Dr8(164Byte)]
 164x(64+2)Byte = 7x1546+2 -> 8x1546+(1+2) = 12371Byte (4.0Sec)

NOTE 4 : ALL ARRANGEMENT PARAMETER DUMP FORMAT (See TABLE 5, NOTE 1)
 [ARR11(131Byte)], .. , [ARR88(131Byte)]
 131x64Byte = 7x1197+5 -> 8x1197+(1+5) = 9582Byte (3.1Sec)

NOTE 5 : ALL STYLE DATA DUMP FORMAT

5-1: Style Header (24Byte) (See TABLE 6-3, NOTE 1)

5-2: Style Data (3328..65496Byte) (See TABLE 6-1, TABLE 6-2, NOTE 1)
 MIN= 24+3328Byte = 7x478+6 -> 8x478+(1+6) = 3831Byte
 MAX= 24+65496Byte = 7x9360+0 -> 8x9360 = 74880Byte (1.2 - 24.0Sec)

NOTE 6 : ALL i2/i3 SONG DATA DUMP FORMAT

6-1: Sequence Data Size (2Byte) 4Step(16Byte)/1Size (See 6-3)
 [Data Size (bit6..0)],
 [Data Size (bit13..7)]

6-2: Control Data Dump Format (3702Byte) (See TABLE 4-1, NOTE 1)
 [Control Data (Song Size(296) x 10 = 2960Byte)],
 [Pattern Data (200Byte)],
 [Song0-Tr.1 Addr (2Byte)], .. , [Song0-Tr.16 Addr], [Song0-Tempo Track Addr],
 [Song1-Tr.1 Addr], .. , [Song9-Tr.16 Addr], [Song9-Tempo Track Addr] (340Byte),
 [Pattern0 Addr (2Byte)], .. , [Pattern99 Addr] (200Byte),
 [Pattern End Addr(2Byte)]

6-3: Sequence Data Dump Format (See TABLE 4-2, NOTE 1)
 [Sequence 1st Data(4Byte)], .. , [Seq.nth Data]
 +-----+
 n : Seq.Data Step = 0 .. 40000
 3702Byte+4x[Seq.Data Step]Byte = 7xA+B -> 8xA+(1+B)Byte
 6-1,6-2,6-3 = 2+8xA+(1+B)Byte (1.3 - 58.5Sec)

NOTE 7 : ALL BACKING SEQUENCE DATA DUMP FORMAT

7-1: Backing Sequence Data Size (2Byte) 4Step(16Byte)/1Size (See 7-3)
 [Data Size (bit6..0)],
 [Data Size (bit13..7)]

7-2: Control Data Dump Format (2292Byte) (See TABLE 7-1, NOTE 1)
 [Control Data (BSQ Size(195) x 10 = 1950Byte)],
 [BSQ0-Tr.1 Addr (2Byte)], .. , [BSQ0-Tr.16 Addr], [BSQ0-Tempo Track Addr],
 [BSQ1-Tr.1 Addr], .. , [BSQ9-Tr.16 Addr], [BSQ9-Tempo Track Addr] (340Byte),
 [End Addr (2Byte)]

7-3: Backing Sequence Data Dump Format (See TABLE 7-2, NOTE 1)
 [B.Sequence 1st Data(4Byte)], .. , [BSQ nth Data]
 +-----+
 n : BSQ Data Step = 0 - 40000
 2292Byte+4x[BSQ Data Step]Byte = 7xA+B -> 8xA+(1+B)Byte
 7-1,7-2,7-3 = 2+8xA+(1+B)Byte (0.8 - 58.0Sec)

NOTE 8 : GLOBAL DATA DUMP FORMAT (See TABLE 2, NOTE 1)
 [Global Data (28Byte)]
 28 = 7x4+0 -> 8x4 = 32Byte

NOTE 9 : DRUMS DATA DUMP FORMAT (See TABLE 3, NOTE 1)
 [Drum Kit Data (7x60x2Byte)]
 840Byte = 7x120+0 -> 8x120 = 960Byte (0.3Sec)

NOTE 10 : ALL DATA (GLB,DRM,PRG,ARR,STY,SEQ,BSQ) DUMP FORMAT (See NOTE 1)
 [Global Data], (See NOTE 8)
 [Drums Data], (See NOTE 9)
 [All Program Parameters], (See NOTE 3)
 [All Arrangement Parameters], (See NOTE 4)
 [All Style Data], (See NOTE 5)
 [All i2/i3 SONG Data] (See NOTE 6-2, 6-3)
 [All Backing Sequence Data] (See NOTE 7-2, 7-3)
 28+840+10824+8384+sty+3702+4x[Seq.Data Step]Byte+2292+4x[BSQ Data Step]
 = 7xC+D -> 8xC+(1+D)Byte (10.5..90.0Sec)

NOTE 11 : mmmm = 4 : GLOBAL 6 : SONG
 10 : ARRANGEMENT 11 : BACKING SEQUENCE

NOTE 12 : VALUE DATA FORMAT (Use with PARAMETER CHANGE,DRUM KIT PARAMETER CHANGE)

Bit15-13 of Value Data is the Sign Flag, and each bit has the same value
 Value Data SSSHHHHH LLLLLLLL (S=Sign H,L=13bit data)
 MIDI Data 0SHHHHHH 0LLLLLLL

NOTE 13 : kk = 00: Drum Kit 1
 01: Drum Kit 2

NOTE 14 : CHORD TYPE

Type	MSB	LSB
No Chord	0000 0000	0000 0000
dim	0000 0000	0100 1001
sus2	0000 0001	0000 0101
m	0000 0001	0000 1001
major	0000 0001	0001 0001
sus4	0000 0001	0010 0001
aug	0000 0010	0001 0001
m6	0000 0101	0000 1001
6	0000 0101	0001 0001
m7b5	0000 1000	0100 1001
7b5	0000 1000	0101 0001
m7	0000 1001	0000 1001
7	0000 1001	0001 0001
7sus4	0000 1001	0010 0001
aug7	0000 1010	0001 0001
dimM7	0001 0000	0100 1001
M7b5	0001 0000	0101 0001
mM7	0001 0001	0000 1001
M7	0001 0001	0001 0001
M7sus4	0001 0001	0010 0001
augM7	0001 0010	0001 0001

NOTE 15 : TENSION NOTE(S)

Tension	MSB	LSB
b9	0000 0000	0000 0010
9	0000 0000	0000 0100
#9	0000 0000	0000 1000
11	0000 0000	0010 0000
#11	0000 0000	0100 0000
b13	0000 0010	0000 0000
13	0000 0100	0000 0000

PROGRAM PARAMETERS (TABLE 1)

No.	PARAMETER	DATA(Hex) : VALUE	VDF-1
00	PROGRAM NAME (Head)	20..7F : ' ' '<-'	50 CUTOFF VALUE 00..63 : 00..99
:	:	:	51 KBD TRACK KEY 00..7F : C-1..G9
09	PROGRAM NAME (Tail)		52 CUTOFF KBD TRACK 9D..63 : -99..99
	OSCILLATOR		53 EG INTENSITY 00..63 : 00..99
10	OSCILLATOR MODE	0,1,2 *1	54 EG TIME KBD TRACK 00..63 : 00..99
	ASSIGN	bit0=0:POL, =1:MON	55 EG TIME VEL.SENSE 00..63 : 00..99
11	HOLD	bit1=0:OFF, =1:ON	56 EG INT.VEL.SENSE 9D..63 : -99..99
12	OSC-1 M/D.SOUND(LSB)	0..???? : 0..????	VDF-1 EG
13	OSC-1 M/D.SOUND(MSB)	*14	57 ATTACK TIME 00..63 : 00..99

14	OSC-1 OCTAVE	FE..01 : 32'..4'	58	ATTACK LEVEL	9D..63 : -99..99
15	OSC-2 M/D.SOUND(LSB)	0..???? : 0..????	59	DECAY TIME	00..63 : 00..99
16	OSC-2 M/D.SOUND(MSB)	*14	60	BREAK POINT	9D..63 : -99..99
17	OSC-2 OCTAVE	FE..01 : 32'..4'	61	SLOPE TIME	00..63 : 00..99
18	INTERVAL	F4..0C : -12..12	62	SUSTAIN LEVEL	9D..63 : -99..99
19	DETUNE	CE..32 : -50..50	63	RELEASE TIME	00..63 : 00..99
20	DELAY START	00..63 : 00..99	64	RELEASE LEVEL	9D..63 : -99..99
	PITCH EG			VDA-1	
21	START LEVEL	9D..63 : -99..99	65	OSCILLATOR LEVEL	00..63 : 00..99
22	ATTACK TIME	00..63 : 00..99	66	KBD TRACK KEY	00..7F : C-1..G9
23	ATTACK LEVEL	9D..63 : -99..99	67	AMP. KBD TRACK INT.	9D..63 : -99..99
24	DECAY TIME	00..63 : 00..99	68	AMP. VELOCITY SENSE	9D..63 : -99..99
25	RELEASE TIME	00..63 : 00..99	69	EG TIME KBD TRACK	00..63 : 00..99
26	RELEASE LEVEL	9D..63 : -99..99	70	EG TIME VEL.SENSE	00..63 : 00..99
27	TIME VELOCITY SENSE	9D..63 : -99..99		VDA-1 EG	
28	LEVEL VELOCITY SENSE	9D..63 : -99..99	71	ATTACK TIME	00..63 : 00..99
	CUTOFF MG		72	ATTACK LEVEL	00..63 : 00..99
	WAVEFORM	bit0..2 : 0..5 *2	73	DECAY TIME	00..63 : 00..99
29	OSC-1 MG ENABLE	bit5=0:OFF, =1:ON	74	BREAK POINT	00..63 : 00..99
	OSC-2 MG ENABLE	bit6=0:OFF, =1:ON	75	SLOPE TIME	00..63 : 00..99
	KEY SYNC	bit7=0:OFF, =1:ON	76	SUSTAIN LEVEL	00..63 : 00..99
30	FREQUENCY	00..63 : 00..99	77	RELEASE TIME	00..63 : 00..99
31	DELAY	00..63 : 00..99		OSC-1 EG TIME KBD TRACK, VEL. SW & POLARITY	
32	INTENSITY	00..63 : 00..99	78	F.EG TIME K.T SW&POL	bit0..7 *3
	AFTERTOUCH		79	F.EG TIME VEL.SW&POL	bit0..7 *3
33	PITCH BEND RANGE	F4..0C : -12..12	80	A.EG TIME K.T SW&POL	bit0..7 *3
34	VDF CUTOFF	9D..63 : -99..99	81	A.EG TIME VEL.SW&POL	bit0..7 *3
35	VDF MG INT	00..63 : 00..99		OSC-1 SEND	
36	VDA AMPLITUDE	9D..63 : -99..99		D SEND LEVEL	bit0..3 : 0..9
	JOYSTICK		82	C SEND LEVEL	bit4..7 : 0..9
37	PITCH BEND RANGE	F4..0C : -12..12		COLOR-1	
38	VDF SWEEP INT.	9D..63 : -99..99	83	INTENSITY	00..63 : 00..99
39	VDF MG INT.	00..63 : 00..99	84	VELOCITY SENSE	9D..63 : -99..99
	OSC-1 PITCH EG			VDF-1, VDA-1 KBD TRACK MODE	
40	PITCH EG INT	9D..63 : -99..99	85	F-1, A-1 KBD TRACK MODE	*4
	OSC-1 PITCH MG			OSC-1 PANPOT	
	WAVEFORM	bit0..2 : 0..5 *2	86	A:B PAN	00..1E,FF *5
41	KEY SYNC	bit7=0:OFF, =1:ON		OSC-2 PARAMETER	
42	FREQUENCY	00..63 : 00..99	87	SAME AS OSC-1(40..86)	
43	DELAY	00..63 : 00..99	:		
44	FADE IN	00..63 : 00..99	133		
45	INTENSITY	00..63 : 00..99	134	(RESERVE)	00
46	FREQ MOD BY KBD TRK	9D..63 : -99..99		EFFECT PARAMETER	
47	INTENSITY MOD BY AT	00..63 : 00..99	135		
48	INTENSITY MOD BY JS	00..63 : 00..99	:		*20
49	FREQ MOD BY AT+JS	00..09 : 0..9	163		

GLOBAL PARAMETERS (TABLE 2)

No.	PARAMETER	DATA(Hex) : VALUE
GLOBAL PARAMETER		
00	MASTER TUNE	CE..32 : -50..50
01	KEY TRANSPOSE	F4..0C : -12..12
02	DAMPER POLARITY	00 : o, 01 : r
03	ASSIGNABLE PEDAL 1	00..2B *8
04	ASSIGNABLE PEDAL 2	00..2B *8
05	MAIN SCALE TYPE	00..0A *9
06	MAIN SCALE KEY	00..0B : C..B
07 : 18	USER SCALE	CE..32 : -50..50
19	VELOCITY CURVE	0..7 : 1..8
20	AFTER TOUCH CURVE	0..7 : 1..8
21	SUB SCALE TYPE	00..0A *9
22	SUB SCALE KEY	00..0B : C..B
23 : 27	RESERVE	00

```
*1 : 0 : SINGLE
    1 : DOUBLE
    2 : DRUMS
```

```
*2 : 0 : TRIANGLE
      1 : UP SAW
      2 : DOWN SAW
      3 : SQUARE1
      4 : RANDOM
      5 : SQUARE2
```

```

3 : bit0 : ATTACK TIME SW          =0:OFF, =1:ON
    bit1 : DECAY TIME SW           =0:OFF, =1:ON
    bit2 : SLOPE TIME SW           =0:OFF, =1:ON
    bit3 : RELEASE TIME SW         =0:OFF, =1:ON
    bit4 : ATTACK TIME POLARITY    =0:+, =1:-
    bit5 : DECAY TIME POLARITY     =0:+, =1:-
    bit6 : SLOPE TIME POLARITY     =0:+, =1:-
    bit7 : RELEASE TIME POLARITY   =0:+, =1:-

```

DRUM PARAMETERS (TABLE 3)

No.	PARAMETER	DATA(Hex) : VALUE
DRUM KIT 1-INDEX #0		
00	INST NO.	00:OFF, 01..:INT
01	KEY	0C..73 : C0..G8
02	A:B PAN	bit0..4 *10
	EXCLUSIVE ASSIGN	bit5..7 *10
03	TUNE	88..78 :-120..120
04	LEVEL	9D..63 : -99..99
05	DECAY	9D..63 : -99..99
06	D SEND LEVEL	bit0..3: 0..9
	C SEND LEVEL	bit4..7: 0..9
DRUM KIT 1-INDEX #1 .. DRUM KIT 2-#59		
07 : 839	SAME AS DRUM KIT 1-#0(00..06)x(60x2-1)	

[illegible]

```
*5 : 00 : L15
      :      :
      OF : CNT
      :      :
      1E : R15
      1F : PRG (When in SONG Mode)
      FF : OFF
```

```
*6 : A11 ..A88 : 00..3F
      B11 ..B88 : 40..7F
      Dr11..Dr16: 80..85
      C11 ..C88 : 86..C5
      U11 ..U88 : 00..3F
      Dr17..Dr18: 40..41
```

```
*7 : bit0 : PROGRAM CHANGE =0:DIS, =1:ENA
    bit1 : DAMPER           =0:DIS, =1:ENA
    bit2 : AFTERTOUCH      =0:DIS, =1:ENA
    bit3 : CONTROL CHANGE  =0:DIS, =1:ENA
```

```

bit7=1 : A11 ..A88
        : B11 ..B88
        : Dr11..Dr16
        : C11 ..C88
=0      : U11 ..U88
        : Dr17..Dr18

```

```
# Program is selected by *6 and *7(bit7)
```

i5s SEQUENCER CONTROL DATA (TABLE 4-1)

No.	PARAMETER	DATA(Hex) : VALUE	PATTERN 0 PARAMETERS
SONG 0 CONTROL DATA		2960	BEAT *12

00	MIDI Channel(Tr.1)	00..0F : 1..16	2961	LENGTH	01..63 : 1..99
:	:	:		PATTERN 1..99 PARAMETERS	
15	MIDI Channel(Tr.16)		2962	SAME AS PATTERN 0(2960,2961) x 99	
16	STATUS (Tr.1)	*11	:		
:	:	:	3159		
31	STATUS (Tr.16)			SONG 0, TRACK 1 DATA ADDRESS	
32	BEND RANGE (Tr.1)	00..0C : 00..12	3160	DATA ADDRESS (LSB)	0000 (Start Addr)
:	:	:	3161	DATA ADDRESS (MSB)	
47	BEND RANGE (Tr.16)			SONG 0, TRACK 2 .. TRACK 16 DATA ADDRESS	
48	BEAT	*12	3162	SAME AS SONG 0, TRACK 1 ADDRESS(3160,3161)	
49	TEMPO	28..F0 : 40..240	:	x 15	
	PROTECT (Tr.1)	bit0=0:OFF, =1:ON	3191		
50	:	:		SONG 0, TEMPO TRACK DATA ADDRESS	
	PROTECT (Tr.8)	bit7	3192	DATA ADDRESS (LSB)	
	PROTECT (Tr.9)	bit0=0:OFF, =1:ON	3193	DATA ADDRESS (MSB)	
51	:	:		SONG 1..9 TRACK DATA ADDRESS	
	PROTECT (Tr.16)	bit7	3194	SAME AS SONG 0, TRACK ADDRESS (3160..3193) x 9	
52	NEXT SONG NO.	*13	:		
53	SONG NAME (Head)	20..7F : ' '...'<-'	3499		
:	:	:		PATTERN 0 DATA ADDRESS	
62	SONG NAME (Tail)		3500	DATA ADDRESS (LSB)	
63	(RESERVE)	00	3501	DATA ADDRESS (MSB)	
64	EFFECT PARAMETER			PATTERN 1 .. PATTERN 99 DATA ADDRESS	
:		*20	3502	SAME AS PATTERN 0(3500,3501)	
92			:		
	TRACK 1 CONTROL DATA		3699		
93	PROGRAM NO.	*6	3700	End Pattern Addr(L)	
94	OUTPUT LEVEL	00..7F : 00..127	3701	End Pattern Addr(H)	
95	KEY TRANSPOSE	E8..18 : -24..24			
96	DETUNE	CE..32 : -50..50	i2/i3	SEQUENCE DATA (TABLE 4-2)	
97	A:B PAN	00..1E,1F,FF *5	No.	PARAMETER	DATA(Hex) : VALUE
	D SEND LEVEL	bit0..3 : 0..9,PRG		SEQUENCE DATA 1	
98	C SEND LEVEL	bit4..7 : 0..9,PRG	3702	DATA (1-L)	*15
99	KEY WINDOW TOP	00..7F : C-1..G9	3703	DATA (1-H)	*15
100	KEY WINDOW BOTTOM	00..7F : C-1..G9	3704	DATA (2-L)	*15
101	VEL WINDOW TOP	01..7F : 01..127	3705	DATA (2-H)	*15
102	VEL WINDOW BOTTOM	01..7F : 01..127		SEQUENCE DATA 2 ..	
103	CONTROL FILTER	*7	3706	SAME AS SEQUENCE DATA 1(3702..3705)	
104	MIDI CHANNEL	00..0F : 1..16	:		
	TRACK 2..16 CONTROL DATA				
105	SAME AS TRACK 1(93..104) x 15				
:					
284					
285..290	(RESERVE)	00			
291	METRONOME LEVEL	00..63 : 0..99			
292	METRONOME PAN	00..1E *5			

293	METRONOME LEAD IN	0..2 : 0..2
294	TEMPO TRACK ON/OFF	0:OFF, 1:ON
295	(RESERVE)	00
SONG 1..9 CONTROL DATA		
296	SAME AS SONG 0 (00..295) x 9	
:		
2959		

*8 : 0 : OFF
1 : START/STOP
2 : SYNC START/STOP
3 : RESET
4 : INTRO/ENDING 1
5 : INTRO/ENDING 2
6 : FILL 1
7 : FILL 2
8 : VARIATION 1
9 : VARIATION 2
A : VARIATION 3
B : VARIATION 4
C : CHORD HOLD
D : BASS INVERSION
E : SCALE CHANGE
F : ARRANGEMENT UP
10 : ARRANGEMENT DOWN
11 : PROGRAM UP
12 : PROGRAM DOWN
13 : VARIATION UP
14 : VARIATION DOWN
15 : PUNCH IN/OUT
16 : EFFECT 1 ON/OFF
17 : EFFECT 2 ON/OFF
18 : DRUM MUTE
19 : PERC MUTE
1A : BASS MUTE
1B : ACC1 MUTE
1C : ACC2 MUTE
1D : ACC3 MUTE
1E : KB VOLUME
1F : EXPRESSION
20 : VDF CUTOFF
21 : EFFECT CONTROL
22 : DATA ENTRY
23 : OFF
24 : OFF
25 : KBD LOCK
26 : TAP TEMPO
27 : SOUND HOLD ON/OFF
28 : SUSTAIN ON/OFF
29 : FADE IN/OUT
2A : ENSEMBLE ON/OFF
2B : MASTER VOLUME

*9 : 0 : EQUAL TEMP
1 : EQUAL TEMP 2
2 : PURE MAJOR
3 : PURE MINOR
4 : ARABIC
5 : PYTHAGOREAN
6 : WERKMEISTER
7 : KIRNBERGER
8 : SLENDRO
9 : PELOG
A : USER SCALE

*10 : bit0..4 = 00 : L15
: :
0F : CNT
: :
1E : R15
1F : OFF

bit5..7 = 0 : EX Off
1 : EX Group1
: :
6 : EX Group6
7 : Self

*11 : bit0,1 = 0 : OFF
1 : INT
2 : EXT
3 : BOTH

*15 : SEQUENCE DATA FORMAT

*15-1 NOTE ON/OFF

DATA(1-H) DATA(1-L) DATA(2-H) DATA(2-L)

1vvv	vvv	t tttt	tttt	kkkk	kkk	g gggg	gggg
------	-----	--------	------	------	-----	--------	------

Velocity Event Time Key No. Length

t = 30: quater note, 1FE : Tie from previous bar
g = 30: quater note, 1FE : Tie to next bar

*15-2 PITCH BEND

0001	000	t tttt	tttt	0	vvv	vvvv 0	vvv	vvvv
------	-----	--------	------	---	-----	--------	-----	------

Event Time Value(H) Value(L)

*15-3 AFTER TOUCH

0010	000	t tttt	tttt		0000	0000 0	vvv	vvvv
------	-----	--------	------	--	------	--------	-----	------

Event Time Value

*15-4 PROGRAM CHANGE

0011	000	t tttt	tttt		0000	00bb 0	ppp	pppp
------	-----	--------	------	--	------	--------	-----	------

bit2,3 = 0 : Play, = 1 : Mute, = 2 : Solo

Event Time Bank Program No.
b = 00..02 p = 00..7F

*12 : bit0..5 10..18 : 1/4 .. 9/4
20..2F : 1/8 .. 16/8
30..3F : 1/16 .. 16/16
bit7 = 0 : High Resolution
1 : Low Resolution

*15-5 CONTROL CHANGE

```

+-----+-----+-----+-----+
|0100 000 t|tttt tttt | 0vvv vvvv|0ccc cccc |
+-----+-----+-----+-----+

```

Event Time Value Control No.
c = 00..65 : Same as MIDI Control Change
= 66 : Assignable Pedal

*13 : bit0..6 = 0 : Song0
: :
9 : Song9
7F : OFF
bit7 = 0/1 : Auto Start OFF/ON

*15-6 POLY KEY PRESSURE

```

+-----+-----+-----+-----+
|0101 000 t|tttt tttt | 0 vvv vvvv|0 kkk kkkk|
+-----+-----+-----+-----+

```

Event Time Value Key No.

*14 : When set to Single/Double Mode
0000 : A.Piano 1
: :
0153 : DJ Kit 2
0154 : A.Piano 3 (i2 only)

*15-7 BAR

```

+-----+-----+-----+-----+
|0110 00bb |bbbb bbbb |xx ss ssss|0ppp pppp |
+-----+-----+-----+-----+

```

Bar No. Type Beat Pattern No.

When set to Drum Mode
00 : User Kit 1
: :
07 : Percussion

x = 00 : Pattern not used
= 10 : Pattern continued
= 11 : Pattern start

s = 10..18 : 1/4..9/4
= 20..2F : 1/8..16/8
= 30..3F : 1/16..16/16

*15-8 TRACK END

```

+-----+-----+-----+-----+
|0111 000 t|tttt tttt |0000 00bb |bbbb bbbb |
+-----+-----+-----+-----+

```

ARRANGEMENT PARAMETERS (TABLE 5)

No.	PARAMETER	DATA(Hex) : VALUE	ACC 1..3 PARAMETERS
00	ARRANGE NAME (Head)	20..7F : ' ' '<'>'	58 SAME AS DRUMS
09	ARRANGE NAME (Tail)		81
10	SYTLE NO.	00..37 : 11..68	KBD 1..2 PARAMETERS
11		: 71..84	82 SAME AS DRUMS
12	INITIAL VARIATION	00..03 : VAR 1..4	:
13			97
14	INITIAL TEMPO	0A..D2 : 40..240	KBD1 VELOCITY WINDOW
15	KEYBOARD ASSIGN	00..03 : *16	98 TOP 01..7F : 1..127
16	SPLIT POINT	24..60 : C2..C7	99 BOTTOM 01..7F : 1..127
17	OCTAVE	FE..02 : -2..+2	KBD2 VELOCITY WINDOW
18	TRANPOSE	F5..0B : -C#..+B	100 TOP 01..7F : 1..127
19	MANUAL DRUM KIT	00..07 : Dr1..Dr8	101 BOTTOM 01..7F : 1..127
	SWITCHES		102 EFFECT PARAMETERS *20
20	DYNAMIC VELOCITY	bit0=0:OFF, =1:ON	:
	TEMPO LOCK	bit1=0:OFF, =1:ON	130
	KBD1 DAMPER ENABLE	bit2=0:OFF, =1:ON	
	KBD2 DAMPER ENABLE	bit3=0:OFF, =1:ON	
	CHORD SCANNING TYPE		*16 : 00 : SINGLE 01 : LAYER 02 : SPLIT 03 : M.DRUMS
21	CHORD SCAN LOW	bit0=0:OFF, =1:ON	
	CHORD SCAN HIGH	bit1=0:OFF, =1:ON	
	BASS INVERSION	bit2=0:OFF, =1:ON	
	CHORD HOLD	bit3=0:OFF, =1:ON	
	CHORD LATCH	bit4=0:OFF, =1:ON	*17 : BANK = 00, PROG = 00..7F : A11..A88..B88 = 01, = 00..7F : C11..C88..U88 = 02, = 00..0F : Dr11..Dr28
22	DEFAULT DRUM MAPPING	00..07 : Dr1..Dr8	

25				= 03,	= 00..7F : D11..E88
26	RESERVE	00			
29					
30	FILL1	00..0C	:OFF..DOWN		
31					
32	FILL2	00..0C	:OFF..DOWN		
33					
DRUM PARAMETERS					
34	PROG			*17	
35	BANK				
36	VOL	00..7F	: 0..127		
37	PAN			*5	
38	C SEND LEVEL	bit0..3	: 0..9,PRG		
	D SEND LEVEL	bit4..7	: 0..9,PRG		
39	OCTAVE	FE..02	: -2..+2		
40	OUT STATUS			*11	
41	WRAP-AROUND	FF..0B	: STY..11		
PERCUSSION PARAMETERS					
42	SAME AS DRUMS				
49					
BASS PARAMETERS					
50	SAME AS DRUMS				
57					

STYLE CONTROL DATA (TABLE 6-1)

No.	PARAMETER	DATA(Hex) : VALUE	INTRO1 CHORD VARIATION1 PARAMETERS
00	STYLE NAME (Head)	20..7F : '...'<-'	110 KEY *18
:	:	:	111 LENGTH 00..10 : 0..16
09	STYLE NAME (Tail)		INTRO1 CHORD VARIATION2 PARAMETERS
10	SYTLE TYPE	0.USER CREATED	112 KEY *18
		1.BUILT-IN	113 LENGTH 00..10 : 0..16
		2.CARD OR DISK	INTRO2 PARAMETERS
11	TEMPO	0A..D2 : 40..240	114 SAME AS INTRO1
12	TIME SIGNATURE	Hi Res only *12	:
	NOTE RETRIGGER SWITCH		117
13	BASS	bit2=0:OFF, =1:ON	ENDING 1..2 PARAMETERS
	ACC1	bit3=0:OFF, =1:ON	118 SAME AS INTRO1
	ACC2	bit4=0:OFF, =1:ON	:
	ACC3	bit5=0:OFF, =1:ON	125
	NOTE SHIFT UP RANGE		FILL 1..2 PARAMETERS
14	BASS	00..0B : 0..11	126 SAME AS INTRO1
15	ACC1	00..0B : 0..11	:
16	ACC2	00..0B : 0..11	133
17	ACC3	00..0B : 0..11	VARIATION 1 CHORD VARIATION TABLE
	TENSION AVAILABLE		134 Major 00..05 : 1..6
18	ACC1	bit3=0:OFF, =1:ON	135 M6 00..05 : 1..6

	ACC2	bit4=0:OFF, =1:ON	136	M7	00..05 : 1..6
	ACC3	bit5=0:OFF, =1:ON	137	M7b5	00..05 : 1..6
19	RESERVE	00	138	sus4	00..05 : 1..6
:			139	sus2	00..05 : 1..6
37			140	M7sus4	00..05 : 1..6
DRUM PARAMETERS			141	minor	00..05 : 1..6
38	PROG	*17	142	m6	00..05 : 1..6
39	BANK		143	m7	00..05 : 1..6
40	VOL	00..7F : 0..127	144	m7b5	00..05 : 1..6
41	PAN	*5	145	mM7	00..05 : 1..6
PERCUSSION PARAMETTERS			146	7th	00..05 : 1..6
42	SAME AS DRUMS		147	7b5	00..05 : 1..6
:			148	7sus4	00..05 : 1..6
45			149	dim	00..05 : 1..6
BASS PARAMETERS			150	dimM7	00..05 : 1..6
46	SAME AS DRUMS		151	aug	00..05 : 1..6
:			152	aug7	00..05 : 1..6
49			153	augM7	00..05 : 1..6
ACC 1..3 PARAMETERS			VARIATION 2..4 CHORD VARIATION TABLE		
50	SAME AS DRUMS		154	SAME AS VARIATION1	
:			:		
61			213		
VARIATION1, CHORD VARIATION1 PARAMETERS					
62	KEY	*18	*18 : 00 : C MAJOR		
			01 : C MINOR		
63	LENGTH	00..10 : 0..16	02 : C#MAJOR		
			03 : C#MINOR		
VARIATION1 CHORD VARIATION2..6 PARAMETERS			:		
			16 : B MAJOR		
64	SAME AS VARIATION1 CHORD VARIATION1		17 : B MINOR		
:					
73					
VARIATION 2..4 PARAMETERS					
74	SAME AS VARIATION1				
:					
109					

INTRO1 CHORD VARIATION TABLE			VARIATION 2..4 DATA ADDRESS		
214	Major	00..01 : 1..2	546	SAME AS VARIATION1 DATA ADDRESS	
215	M6	00..01 : 1..2	:		
216	M7	00..01 : 1..2	581		
217	M7b5	00..01 : 1..2	ENDING 1..2 DATA ADDRESS		
218	sus4	00..01 : 1..2	582	SAME AS VARIATION1 DATA ADDRESS	
219	sus2	00..01 : 1..2	:		
220	M7sus4	00..01 : 1..2	605		
221	minor	00..01 : 1..2	FILL 1..2 DATA ADDRESS		
222	m6	00..01 : 1..2	606	SAME AS VARIATION1 DATA ADDRESS	
223	m7	00..01 : 1..2	:		
224	m7b5	00..01 : 1..2	629		
225	mM7	00..01 : 1..2	PATTERN 0 DATA ADDRESS		
226	7th	00..01 : 1..2	630	DATA ADDRESS (LSB)	

227	7b5	00..01 : 1..2	631	DATA ADDRESS (MSB)	
228	7sus4	00..01 : 1..2	PATTERN 1..99 DATA ADDRESS		
229	dim	00..01 : 1..2	632	SAME AS PATTERN 0	
230	dimM7	00..01 : 1..2	:		
231	aug	00..01 : 1..2	829		
232	aug7	00..01 : 1..2	830	END PATTERN ADDR(L)	
233	augM7	00..01 : 1..2	831	END PATTERN ADDR(M)	
INTRO2 CHORD VARIATION TABLE					
234	SAME AS INTRO1		STYLE DATA (TABLE 6-2)		
:			No.	PARAMETER	DATA(Hex) : VALUE
253			STYLE 1 DATA		
ENDING 1..2 CHORD VARIATION TABLE			0	DATA (1-L)	*15
254	SAME AS INTRO1		1	DATA (1-H)	*15
:			2	DATA (2-L)	*15
293			3	DATA (2-H)	*15
FILL 1..2 CHORD VARIATION TABLE			STYLE 2 DATA ..		
294	SAME AS INTRO1		4	SAME AS STYLE1	
:			:		
333					
PATTERN 0 CONTROL DATA					
334	BEAT	:	*12	STYLE HEADER (TABLE 6-3)	
335	LENGTH	01..63 : 1..99	No.	PARAMETER	DATA(Hex) : VALUE
PATTERN 1..99 CONTROL DATA			STYLE 1		
336	SAME AS PATTERN 0		0	STYLE1 ADDRESS	
:			:		
533			3		
VARIATION1 ACC1 DATA ADDRESS			4	STYLE1 SIZE	
534	DATA ADDRESS (LSB)		5		
535	DATA ADDRESS (MSB)		STYLE 2..4		
VARIATION1 ACC 2..3 DATA ADDRESS			6	SAME AS STYLE1	
536	SAME AS VARIATION1 ACC1 DATA ADDRESS		:		
:			23		
539					
VARIATION1 BASS, DRUMS, PERC. DATA ADDRESS					
540	SAME AS VARIATION1 DATA ADDRESS				
:					
545					
BACKING SEQUENCE CONTROL DATA (TABLE 7-1)					
No.	PARAMETER	DATA(Hex) : VALUE	EXTRA TRACK 1 CONTROL DATA		
BSEQ 0 CONTROL DATA			46	PROG	*17
00	BSEQ NAME (Head)	20..7F : ' '..<-'	47	BANK	
:	:	:	48	VOL	00..7F : 0..127
09	BSEQ NAME (Tail)		49	PAN	*5
10	ARRANGEMENT NO.	00..3F : 11..88	50	C SEND LEVEL	bit0..3 : 0..9,PRG
11				D SEND LEVEL	bit4..7 : 0..9,PRG
12	STYLE NO.	00..37 : 11..68	51	TRACK STATUS	*11
13		71..84	52	BEND RANGE	00..0C : 00..12
14	VARIATION	00..03 : VAR 1..4	53	KEY TRANSPOSE	E8..18 : -24..24
15			54	DETUNE	CE..32 : -50..50

16	TEMPO	0A..D2 : 40..240	55	PROTECT	: OFF/ON
17	KEYBOARD ASSIGN	*16	56	MIDI CHANNEL	00..0F : 1..16
	CHORD SCANNING TYPE		57	VEL WINDOW TOP	01..7F : 1..127
18	CHORD SCAN LOW	bit0=0:OFF, =1:ON	58	VEL WINDOW BOTTOM	01..7F : 1..127
	CHORD SCAN HIGH	bit1=0:OFF, =1:ON	59	KEY WINDOW TOP	00..7F : C-1..G9
	BASS INVERSION	bit2=0:OFF, =1:ON	60	KEY WINDOW BOTTOM	00..7F : C-1..G9
	CHORD HOLD	bit3=0:OFF, =1:ON		EXTRA TRACK 2..8 CONTROL DATA	
	CHORD LATCH	bit4=0:OFF, =1:ON	61	SAME AS TRACK 1	
19	KBD1 PROG	*17	:		
20	KBD1 BANK		165		
21	KBD1 OCTAVE	FE..02 : -2..+2	166	EFFECT PARAMETER	*20
22	KBD2 PROG	*17	:		
23	KBD2 BANK		194		
24	KBD2 OCTAVE	FE..02 : -2..+2		BSEQ 1..9 CONTROL DATA	
25	KEYBOARD TRK STATUS	*21-1	195	SAME AS BSEQ 0	
26	CONTROL TRK STATUS	*21-1	:		
27	CHORD TRK STATUS	*21-1	1949		
28	AUTOTEMPO	0A..D2 : 40..240		BSEQ TRACK1 DATA ADDRESS	
29	BEAT	Hi Res only *12	1950	DATA ADDRESS (LSB)	
30	SPLIT POINT	24..60 : C2..C7	1951	DATA ADDRESS (MSB)	
31	TRANSPOSE	F5..0B :-C#..+B		BSEQ0 TRACK 2..16 DATA ADDRESS	
	SWITCHES		1952	SAME AS BSEQ0 TRACK1 DATA ADDRESS	
32	DYNAMIC VELOCITY	bit0=0:OFF, =1:ON	:		
33	RESERVE	00	1981		
:				BSEQ0 TEMPO TRACK DATA ADDRESS	
39			1982	SAME AS BSEQ0 TRACK1 DATA ADDRESS	
40	METRONOME SWITCH	*21-2	1983		
41	METRONOME LEVEL	00..63 : 0..99		BSEQ 1..9 DATA ADDRESS	
42	METRONOME PAN	*5	1984	SAME AS BSEQ0 TRACK DATA ADDRESS	
43	METRONOME LEAD-IN	0..2 : 0..2	:		
44	NEXT BSEQ No.	*21-3	2289		
45	AUTO START	*21-4	2290	END ADDRESS (LSB)	
			2291	END ADDRESS (MSB)	

*21-1 : Track Status

*21-3 : Next BSeq No.

00 : MUTE
01 : PLAY

FF : OFF
00 : BSeq 0
:
09 : BSeq 9

*21-2 : Metronome Switch

00 : OFF
01 : ON
02 : REC

*21-4 : Auto Start

00 : OFF
01 : ON

B. SEQUENCE DATA (TABLE 7-2)

No.	PARAMETER	DATA(Hex) : VALUE	
	BACKING SEQUENCE DATA 1		*19-1-1 : 0..55 : P11..P68, U1..U4, C1..C4
0	DATA (1-L)	*19	*19-1-2 : 0 : Variation1
1	DATA (1-H)	*19	: 3 : Variation4 4 : Intro1

```

| 2 | DATA (2-L) | | *19 |
+-----+-----+-----+
| 3 | DATA (2-H) | | *19 |
+-----+-----+-----+
| BACKING SEQUENCE DATA 2.. |
+-----+-----+-----+
| 4 | SAME AS BACKING SEQUENCE DATA 1 (0..3) | |
| : | | |
| | | |
+-----+-----+-----+

```

```

5 : Intro2
6 : Ending1
7 : Ending2
8 : Fill1
9 : Fill2

```

*19 : BACKING SEQUENCE DATA FORMAT

*19-1 : BACKING CONTROL EVENT

```

DATA(1-H) DATA(1-L) DATA(2-H) DATA(2-L)
+-----+-----+-----+-----+
|10ii iii t|tttt tttt |vvvv vvvv |vvvv vvvv |
+-----+-----+-----+-----+
EventID EventTime Value 2 Value 1

```

```

+-----+-----+-----+-----+
| EventID | Value |
+-----+-----+-----+-----+
| 0 | Arrangement | 0..63 | 11..88 |
+-----+-----+-----+-----+
| 1 | Style | 0..55 | *19-1-1 |
+-----+-----+-----+-----+
| 2 | Variation | 0..9 | *19-1-2 |
+-----+-----+-----+-----+
| 3 | Keyboard Assign | 0..3 | *19-1-3 |
+-----+-----+-----+-----+
| 4 | Chord Scan | 0..3 | *19-1-4 |
+-----+-----+-----+-----+
| 5 | Chord Hold | 0/1 | OFF/ON |
+-----+-----+-----+-----+
| 6 | Bass Inversion | 0/1 | OFF/ON |
+-----+-----+-----+-----+
| 7 | Transpose | -11..+11 |
+-----+-----+-----+-----+
| 8 | Drum Mute | 0/1 | MUTE/PLAY |
+-----+-----+-----+-----+
| 9 | Perc.Mute | 0/1 | MUTE/PLAY |
+-----+-----+-----+-----+
| 10 | Bass Mute | 0/1 | MUTE/PLAY |
+-----+-----+-----+-----+
| 11 | ACC1 Mute | 0/1 | MUTE/PLAY |
+-----+-----+-----+-----+
| 12 | ACC2 Mute | 0/1 | MUTE/PLAY |
+-----+-----+-----+-----+
| 13 | ACC3 Mute | 0/1 | MUTE/PLAY |
+-----+-----+-----+-----+
| 14 | Drum Map | 0..7 | 1..8 |
+-----+-----+-----+-----+
| 15 | KBD1 Prog | V1 = PROG | V2 = BANK |
+-----+-----+-----+-----+
| 16 | KBD2 Prog | V1 = PROG | V2 = BANK |
+-----+-----+-----+-----+
| 17 | KBD1 Octave | -2..+2 |
+-----+-----+-----+-----+
| 18 | KBD2 Octave | -2..+2 |
+-----+-----+-----+-----+

```

```

*19-1-3 : 0 : SINGLE
1 : LAYER
2 : SPLIT
3 : M.DRUM

```

```

*19-1-4 : 0 : OFF
1 : LOWER
2 : UPPER
3 : FULL

```

*19-2 : CHORD EVENT

```

+-----+-----+-----+-----+
|11ii iii t|tttt tttt |nnnn nnnn |bbbb rrrr |
+-----+-----+-----+-----+
ChordID EventTime TensionNote Bass Root

```

```

ChordID = 0 : No Chord
1 : Major
2 : Major 6th
3 : Major 7th
4 : Major 7th Flatted 5th
5 : Suspended 4th
6 : Suspended 2nd
7 : Major 7th Suspended 4th
8 : Minor
9 : Minor 6th
10 : Minor 7th
11 : Minor 7th Flatted 5th
12 : Minor Major 7th
13 : Dominant 7th
14 : 7th Flatted 5th
15 : 7th Suspended 4th
16 : Diminished
17 : Diminished Major 7th
18 : Augmented
19 : Augmented 7th

```

20 : Augmented Major 7th

TensionNote = 0000 0001 : Flatted 9th
 0000 0010 : 9th
 0000 0100 : Sharped 9th
 0000 1000 : 11th
 0001 0000 : Sharped 11th
 0010 0000 : Flatted 13th
 0100 0000 : 13th

*20 EFFECT PARAMETERS			13:Stereo Delay, 14:Cross Delay	
No.	PARAMETER	DATA(Hex) : VALUE		
(00)	Effect 1 Type No.	0,1..2F:OFF,1..47	(00) Delay Time L (L)	00..1F4 : 00..500
(01)	Effect 2 Type No.	0,1..2F:OFF,1..47	(01) Delay Time L (H)	
(02)	Effect1 L-Ch E.Balnc	00..64 : 00..100	(02) Feedback	9D..63 : -99..99
(03)	Effect1 R-Ch E.Balnc	00..64 : 00..100	(03) High Damp	00..63 : 00..99
(04)	Effect2 L-Ch E.Balnc	00..64 : 00..100	(04) Delay Time R (L)	00..1F4: 00..500
(05)	Effect2 R-Ch E.Balnc	00..64 : 00..100	(05) Delay Time R (H)	
(06)	Output 3 Pan	00,01..65 *20-1	(06) EQ High	F4..0C : -12..12
(07)	Output 4 Pan	00,01..65 *20-1	(07) EQ Low	F4..0C : -12..12
(08)	Effect I/O	bit5..0 *20-2	15:Dual Delay	
(09)	Effect 1 Parameters		(00) Delay Time L (L)	00..1F4: 00..500
:		*20-3	(01) Delay Time L (H)	
(16)			(02) Feedback L	9D..63 : -99..99
(17)	Effect 1 Mod Source	00..0D *20-4	(03) High Damp L	00..63 : 00..99
(18)	Effect 1 Mod Amount	F1..0F : -15..15	(04) Delay Time R (L)	00..1F4: 00..500
(19)	Effect 2 Parameters		(05) Delay Time R (H)	
:		*20-3	(06) Feedback R	9D..63 : -99..99
(26)			(07) High Damp R	00..63 : 00..99
(27)	Effect 2 Mod Source	00..0D *20-4	16..18:Multitap Delay 1,2,3	
(28)	Effect 2 Mod Amount	F1..0F : -15..15	(00) Delay Time A(L)	00..1F4: 00..500
*20-1 : 00 : Off	*20-2 :		(01) Delay Time (H)	
01 : R	bit0=0:Efct1 L-Ch Off,=1:On		(02) Delay Time B(L)	00..1F4: 00..500
02 : 01:99	bit1=0:Efct1 R-Ch Off,=1:On		(03) Delay Time (H)	
.	.		(04) Feed back	9D..63 : -99..99
.	bit2=0:Efct2 L-Ch Off,=1:On		(06) EQ Low	F4..0C : -12..12
64 : 99:01	bit3=0:Efct2 R-Ch Off,=1:On		(07) EQ High	F4..0C : -12..12
65 : L	bit4,5=0:Serial		19,20:Stereo Chorus 1,2	
	1:Parallel		(00) Mod Depth	00..63 : 00..99
	2:Parallel 2		(01) Mod Speed	00..D8 *20-3-2
	3:Parallel 3			bit0=0:Sin, =1:Tri
*20-3 : Effect Parameters (8Byte) 47 Types			(02) MG Status	*20-3-3 bit1 <- 1
offset	PARAMETER	DATA(Hex) : VALUE		bit2 <- 0
1..3:Hall, (4,5:Room, 6:Live Stage)			(04) Delay Time	00..C8 : 00..200
(00) Reverb Time	00..61(2F):0.2..9.9(4.9)		(06) EQ High	F4..0C : -12..12
(01) (NUL)	00		(07) EQ Low	F4..0C : -12..12
(02) High Damp	00..63 : 00..99		21:Quadrature Chorus, 22:X Over Chorus	
(03) Pre Delay	00..C8 : 00..200		(00) Delay Time L	00..FA : 00..250
(04) E.R Level	00..63 : 00..99		(01) Delay Time R	00..FA : 00..250
(05) (NUL)	00		(02) Mod Speed	01..63 : 01..99

(06) EQ High	F4..0C : -12..12	(03) Mod Depth	00..63 : 00..99
(07) EQ Low	F4..0C : -12..12	(04) Mod Waveform	EB..14 *20-3-4
NUL not listed from here on, Value must be 00			
7:Wet Plate, 8:Dry Plate, 9:Spring		(06) EQ Low	F4..0C : -12..12
		(07) EQ High	F4..0C : -12..12
(00) Pre Delay(L)	00..C8 : 00..200	23:Harmonic Chorus	
(01) Pre Delay(H)		(00) Delay Time A (L)	00..1F4: 00..500
(02) E.R Level	01..0A : 01..10	(01) Delay Time A (H)	
(03) Reverb Time	00..63 : 00..99	(02) Delay Time B (L)	
(04) High Damp	00..63 : 00..99	(03) Delay Time B (H)	00..1F4: 00..500
(06) EQ Low	F4..0C : -12..12	(04) Mod Speed	01..63 : 01..99
(07) EQ High	F4..0C : -12..12	(05) Mod Depth	00..63 : 00..99
10..12:Early Reflection 1,2,3		(06) Filter Split Point	00..12 : 00..18
(00) E.R Time	00..46 : 100..800	24:Symphonic Ensemble	
(01) Pre Delay	00..C8 : 00..200	(00) Mod Depth	00..63 : 00..99
(06) EQ High	F4..0C : -12..12	(06) EQ High	F4..0C : -12..12
(07) EQ Low	F4..0C : -12..12	(07) EQ Low	F4..0C : -12..12
25,26:Flanger1,2, 27:X Over Flanger 38:Chorus-Delay, 39:Flanger-Delay			
(00) Delay Time	00..C8 : 00..200	(00) Delay Time	00..32 : 00..50
(01) Mod Depth	00..63 : 00..99	(01) Mod Speed	01..63 : 01..99
(02) Mod Speed	01..63 : 01..99	(02) Mod Depth	00..63 : 00..99
(03) Feedback	9D..63 : -99..99	(03) Feedback	9D..63 : -99..99
(06) EQ Low	F4..0C : -12..12	(04) Delay Time	00..E1 : 00..450
(07) EQ High	F4..0C : -12..12	(05) Feedback	9D..63 : -99..99
28:Exciter 40:Delay / Hall			
(00) Harmonic density	9D..63 : -99..99	(00) Delay Time (L)	00..1F4 : 00..500
(01) Hot Spot	00..09 : 01..10	(01) Delay Time (H)	
(06) EQ High	F4..0C : -12..12	(02) Feedback	9D..63 : -99..99
(07) EQ Low	F4..0C : -12..12	(03) High Damp	00..63 : 00..99
29:Enhancer (04) Reverb Time 00..61 : 0.2..9.9			
(00) Harmonic Density	01..63 : 01..99	(06) High Damp	00..63 : 00..99
(01) Hot Spot	01..14 : 01..20	(07) Pre Delay	00..96 : 00..150
(02) Stereo Width	00..63 : 00..99	41:Delay / Room	
(03) Delay	01..63 : 01..99	(00) Delay Parameter	*20-3-1
(06) EQ Low	F4..0C : -12..12	:	
(07) EQ High	F4..0C : -12..12	(03)	
30:Distortion, 31:Over Drive (04) Reverb Time 00..2F : 0.2..4.9			
(00) Drive	01..6F : 01..111	(06) High Damp	00..63 : 00..99
(01) Hot Spot	00..63 : 00..99	(07) Pre Delay	00..96 : 00..150
(02) Resonance	00..63 : 00..99	42:Delay / Chorus, (43:Delay / Flanger)	
(03) Distortion Level	00..63 : 00..99	(00) Delay Parameter	*20-3-1
(06) EQ Low	F4..0C : -12..12	:	
(07) EQ High	F4..0C : -12..12	(03)	
32,33:Phaser 1,(2) (04) Depth 00..63 : 00..99			
(00) Mod Depth	00..63 : 01..99	(05) Speed	00..D8 *20-3-2
(01) Mod Speed	00..D8 : *20-3-2		bit0=0:S,=1:T(<-0)

		bit0=0:Sin, =1:Tri	(06)	MG Status *20-3-3	bit1 <- 0
(02)	MG Status *20-3-3	bit1 <- 1,(0)			bit2 <- 0, (<-1)
		bit2 <- 0	(07)	Feedback	0,(9D..63:-99..99)
(03)	Feedback	9D..63 : -99..99		44:Delay / Distortion, 45:Delay / Over Drive	
(04)	Hot Spot	00..63 : 00..99	(00)	Delay Time (L)	00..1F4: 00..500
	34:Rotary Speaker		(01)	Delay Time (H)	
(00)	Vibrato Depth	00..0F : 00..15	(02)	Feedback	9D..63 : -99..99
(01)	Acceleration	01..0F : 01..15	(03)	Drive	01..6F : 01..111
(02)	Slow Speed	01..63 : 01..99	(04)	Hot Spot	01..63 : 01..99
(03)	Fast Speed	01..63 : 01..99	(05)	Resonance	00..63 : 00..99
	35:Auto Pan, (36:Tremolo)		(06)	Distortion Level	01..63 : 01..99
(00)	Depth	00..63 : 00..99		46:Delay / Phaser	
(01)	Speed	00..D8 : *20-3-2	(00)	Delay Parameter	*20-3-1
		bit0=0:Sin, =1:Tri	:		
(02)	MG Status *20-3-3	bit1 <- 1, (0)	(03)		
		bit2 <- 0	(04)	Depth	00..63 : 00..99
(03)	Shape	9D..63 : -99..99	(05)	Speed	00..D8 *20-3-2
(06)	EQ High	F4..0C : -12..12	(06)	Feedback	9D..63 : -99..99
(07)	EQ Low	F4..0C : -12..12		47:Delay / Rotary Speaker	
	37:Parametric EQ		(00)	Delay Time (L)	00..1F4: 00..500
(00)	Low Freq	00..1D : 00..29	(01)	Delay Time (H)	
(01)	Low Gain	F4..0C : -12..12	(02)	Feedback	9D..63 : -99..99
(02)	Mid Freq	00..63 : 00..99	(03)	Acceleration	01..0F : 01..15
(03)	Mid Gain	F4..0C : -12..12	(04)	Slow Speed	01..63 : 01..99
(04)	Mid Width	00..63 : 00..99	(05)	Fast Speed	01..63 : 01..99
(05)	High Freq	00..1D : 00..29			
(06)	High Gain	F4..0C : -12..12			

*20-3-1 : Delay Parameter
Same as 40-(00)..(03)

*20-3-2 : Data(Hex) Value[Hz]
00..63 0.03.. 3.00 (0.03step)
64..C7 3.1 ..13.0 (0.1 step)
C8..D8 14 ..30.0 (1 step)

*20-3-3 : MG Status
bit0 : Waveform =0:Sin, =1:Tri
bit1 : Phase =0:0 deg., =1:180 deg.
bit2 : Wave Shape =0: Normal
=1: for Flanger

*20-3-4 : Waveform
EB : T+10
| : |
FF : T-10
00 : S-10
| : |
14 : S+10

*20-4 : Dynamic Modulation Source
0 : None
1 : Joy Stick (+Y)
2 : Joy Stick (-Y)
3 : Aftertouch
4 : Assignable Pedal 1
5 : Assignable Pedal 2
6 : VDA EG

ARRANGEMENT PARAMETERS (TABLE 8)

No.	TRACK	PARAMETER	VALUE
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0	----	TEMPO	40..240
1	----	CHORD LATCH	0..1
2	----	SPLIT POINT	0..127
3	----	TRANSCOPE	-11..11
4	----	VARIATION BY FILL 1	0..12
5	----	VARIATION BY FILL 2	0..12
6	----	EFFECT 1 TYPE	0..47
7	----	EFFECT 1 LEVEL	0..100
8	----	EFFECT 2 TYPE	0..47
9	----	EFFECT 2 LEVEL	0..100
10	DRUM	PROGRAM	*1
11	DRUM	VOLUME	0..127
12	DRUM	PANPOT	-1..31
13	DRUM	C LEVEL	0..10
14	DRUM	D LEVEL	0..10
15	DRUM	MUTE	0..1
16	----	----	----
17	DRUM	OUTPUT STATUS	0..3
18	----	----	----
19	----	----	----
20	PERC	PROGRAM	*1
21	PERC	VOLUME	0..127
22	PERC	PANPOT	-1..31
23	PERC	C LEVEL	0..10
24	PERC	D LEVEL	0..10
25	PERC	MUTE	0..1
26	----	----	----
27	PERC	OUTPUT STATUS	0..3
28	----	----	----
29	----	----	----
30	BASS	PROGRAM	*1
31	BASS	VOLUME	0..127
32	BASS	PANPOT	-1..31
33	BASS	C LEVEL	0..10
34	BASS	D LEVEL	0..10
35	BASS	MUTE	0..1
36	BASS	OCTAVE	-2..2
37	BASS	OUTPUT STATUS	0..3
38	BASS	WRAP AROUND POINT	-1..11
39	----	----	----
40	ACC1	PROGRAM	*1
41	ACC1	VOLUME	0..127
42	ACC1	PANPOT	-1..31
43	ACC1	C LEVEL	0..10
44	ACC1	D LEVEL	0..10

45	ACC1	MUTE	0..1
46	ACC1	OCTAVE	-2..2
47	ACC1	OUTPUT STATUS	0..3
48	ACC1	WRAP AROUND POINT	-1..11
49	----	----	----
50	ACC2	PROGRAM	*1
51	ACC2	VOLUME	0..127
52	ACC2	PANPOT	-1..31
53	ACC2	C LEVEL	0..10
54	ACC2	D LEVEL	0..10
55	ACC2	MUTE	0..1
56	ACC2	OCTAVE	-2..2
57	ACC2	OUTPUT STATUS	0..3
58	ACC2	WRAP AROUND POINT	-1..11
59	----	----	----
60	ACC3	PROGRAM	*1
61	ACC3	VOLUME	0..127
62	ACC3	PANPOT	-1..31
63	ACC3	C LEVEL	0..10
64	ACC3	D LEVEL	0..10
65	ACC3	MUTE	0..1
66	ACC3	OCTAVE	-2..2
67	ACC3	OUTPUT STATUS	0..3
68	ACC3	WRAP AROUND POINT	-1..11
69	----	----	----
70	KBD1	PROGRAM	*1
71	KBD1	VOLUME	0..127
72	KBD1	PANPOT	-1..31
73	KBD1	C LEVEL	0..10
74	KBD1	D LEVEL	0..10
75	KBD1	MUTE	0..1
76	KBD1	OCTAVE	-2..2
77	----	----	----
78	----	----	----
79	KBD1	DAMPER ENABLE	0..1
80	KBD2	PROGRAM	*1
81	KBD2	VOLUME	0..127
82	KBD2	PANPOT	-1..31
83	KBD2	C LEVEL	0..10
84	KBD2	D LEVEL	0..10
85	KBD2	MUTE	0..1
86	KBD2	OCTAVE	-2..2
87	----	----	----
88	----	----	----
89	KBD2	DAMPER ENABLE	0..1

*1 : 0.. 63 = A11..A88

64..127 = B11..B88
 128..191 = C11..C88
 192..255 = U11..U88
 256..319 = D11..D88
 320..383 = E11..E88
 384..399 = Dr11..Dr28

DRUM KIT PARAMETERS (TABLE 9)

No.	PARAMETER	No. from TABLE 3
0	INST No.	0+7n
1	KEY	1+7n
2	TUNE	3+7n
3	OUTPUT LEVEL	4+7n
4	DECAY	5+7n
5	EXCLUSIVE ASSIGN	2+7n b5..7
6	A:B PAN	2+7n b0..4
7	C SEND LEVEL	6+7n b4..7
8	D SEND LEVEL	6+7n b0..3

PARAM No. for DRUM PARAM CHANGE
 n : 0..59 (Index)